

WHAT IS CLAIMED IS:

1. A personal air cleaning apparatus comprising:

a sucking/discharging unit having a suction port for sucking contaminated air, and a discharge port for discharging filtered air;

a filter for outwardly discharging air received from the sucking/discharging unit while supplying clean air via the sucking/discharging unit; .

a conduit for connecting the sucking/discharging unit to the filter; and

a position determining member arranged around the conduit unit and adapted to allow the conduit unit to be bent without being folded, while fixing the position of the sucking/discharging unit.

2. The personal air cleaning apparatus according to claim 1, wherein the sucking/discharging unit comprises:

a suction guide provided with a suction port at one end thereof while being connected to the conduit at the other end thereof;

a suction port cap mounted to the suction port of the suction guide while having a plurality of suction holes to guide a flow of air introduced therein; and

a discharge guide formed with a discharge port at one end

thereof, connected to the conduit at the other end thereof, and arranged around the suction guide while being spaced apart from the suction guide by a desired gap to guide a flow of discharged air while having a shape similar to that of the suction guide.

3. The personal air cleaning apparatus according to claim 1, wherein the discharge guide is configured to partially block the discharge port so that it forms a contaminated air passage connecting the discharge port to the suction port.

4. The personal air cleaning apparatus according to claim 3, wherein the discharge port is blocked at a region extending through an angle of 30° to 200° by eliminating formation of the discharge port at the region, or blocking the discharge port by a cover at the region.

5. The personal air cleaning apparatus according to claim 3, wherein a discharge air passage is defined between the discharge guide and the suction guide, and guide vanes are mounted to a downstream end of the discharge air passage to guide a flow of air discharged through the discharge air passage.

6. The personal air cleaning apparatus according to claim 1, wherein the position determining member comprises a flexible hose able to be freely bent and to be fixed, and fixing means for fixing a status of the flexible hose, so that the sucking/discharging unit is adjustable in orientation and height by the flexible hose.

7. The personal air cleaning apparatus according to claim 1, wherein the sucking/discharging unit is configured so that its portion connected to the conduit has a diameter smaller than that of its portion defined with the suction and discharge ports.

8. The personal air cleaning apparatus according to claim 1, wherein:

the sucking/discharging unit has a neck connected to the conduit while being rotatable;

an outer case is mounted to the sucking/discharging unit;

the outer case is formed with suction holes and discharge holes at the entire side portion thereof; and

the discharge holes are communicated with an inner case.

9. The personal air cleaning apparatus according to claim 8, wherein the sucking/discharging unit includes a blocking cover adapted to block the suction holes within a desired

region.

10. The personal air cleaning apparatus according to claim 1 or 2, wherein the conduit comprises:

an inner conduit connected at one end thereof to the suction guide while being connected at the other end thereof to a sucking section included in the filter; and

an outer conduit arranged around the inner conduit while defining a passage for clean air in cooperation with the inner conduit, the outer conduit being connected at one end thereof to the discharge guide 13, and at the other end thereof to a discharge section included in the filter.

11. The personal air cleaning apparatus according to claim 1 or 10, wherein the conduit has a detachable end structure so as to adjust its length, while having no portion sharply bent through an angle of not more than 90° so as not to interfere with a flow of air.

12. The personal air cleaning apparatus according to claim 1 or 10, wherein the filter comprises:

a suction section connected to the suction guide of the sucking/discharging unit, and adapted to generate a sucking force;

a blower connected to the discharge guide of the

sucking/discharging unit, and adapted to feed clean air under pressure;

a motor for simultaneously driving the suction section and the blower;

a suction section for connecting the suction section to the inner conduit of the conduit; and

a discharge section for connecting the blower to the outer conduit.

13. The personal air cleaning apparatus according to claim 12, wherein the suction section and the blower communicate with the atmosphere, and serve to outwardly discharge contaminated air into the atmosphere while sucking fresh air and feeding the sucked air under pressure.

14. The personal air cleaning apparatus according to claim 12, wherein the suction section communicates with the blower, and an air filtering chamber is arranged between the suction section and the blower, so that contaminated air introduced into the filter through the suction section is filtered in the air filtering chamber, and then feed under pressure by the blower.

15. The personal air cleaning apparatus according to claim 12, wherein each of the suction and discharge sections

has a branched tube structure so that it allows a plurality of sucking/discharging units to be simultaneously connected thereto.

16. The personal air cleaning apparatus according to claim 1, wherein the position determining member comprises:

a base fixed to the floor;

a plurality of hinge members arranged between the base and the neck of the sucking/discharging unit while being uniformly spaced apart from one another, and adapted to protect the conduit; and

link members adapted to connect the hinge members.

17. The personal air cleaning apparatus according to claim 16, wherein each of the hinge members comprises:

a pair of inner plates spaced apart from each other by a desired gap to receive the conduit therebetween;

connecting rods adapted to connect the inner plates while maintaining the gap between the inner plates; and

a pair of outer plates rotatably mounted to the inner plates outside the inner plates, respectively, each of the outer plates being coupled with an associated one of the link members.

18. The personal air cleaning apparatus according to

claim 1, wherein the conduit comprises a flexible hose, and the position determining member comprises locking means mounted to a desired portion of the sucking/discharging unit, and adapted to lock the sucking/discharging unit in a position adjusted state in vertical and horizontal directions.

19. The personal air cleaning apparatus according to claim 1, wherein the conduit is provided with an attenuation member for attenuating vibrations or noise caused by air flowing through the conduit.

20. The personal air cleaning apparatus according to claim 1, wherein the sucking/discharging unit has a humidification or illumination function.

21. A personal air cleaning apparatus comprising:

a sucking/discharging unit having a suction port for sucking contaminated air, a discharge port for discharging filtered air, and a filter for filtering contaminants contained in air;

a filter for outwardly discharging contaminated air received from the sucking/discharging unit;

a conduit for connecting the sucking/discharging unit to the filter; and

a position determining member arranged around the conduit

unit and adapted to allow the conduit unit to be bent without being folded, while fixing the position of the sucking/discharging unit.

22. The personal air cleaning apparatus according to claim 21, wherein the sucking/discharging unit comprises:

a suction guide provided with a suction port at one end thereof while being connected to the conduit at the other end thereof;

a suction port cap mounted to the suction port of the suction guide while having a plurality of suction holes to guide a flow of air introduced therein;

a discharge guide formed with a discharge port at one end thereof, connected to the conduit at the other end thereof, and arranged around the suction guide while being spaced apart from the suction guide by a desired gap to guide a flow of discharged air while having a shape similar to that of the suction guide;

a U-turn guide mounted to the other end of the discharge guide and adapted to partially return, to the discharge port, contaminated air introduced by the suction guide; and

a filter arranged between the suction guide and the discharge guide and adapted to filter the contaminated air returned by the U-turn guide.

23. The personal air cleaning apparatus according to claim 22, wherein the sucking/discharging unit further comprises flow rate control means installed between the discharge guide and the suction guide and adapted to control the amount of air supplied to the filter.

24. The personal air cleaning apparatus according to claim 22, wherein the U-turn guide is adjustable in installation angle to adjust the amount of air returned to the discharge port.

25. The personal air cleaning apparatus according to claim 22, wherein guide vanes are mounted to a downstream end of the discharge guide to change the flow direction of discharged air.